

NON-PUBLIC?: N

ACCESSION #: 9002230074

LICENSEE EVENT REPORT (LER)

FACILITY NAME: Braidwood PAGE: 1 OF 3

DOCKET NUMBER: 05000456

TITLE: Reactor Trip During DC Ground Isolation Activities due to a
Deficient Procedure

EVENT DATE: 01/12/90 LER #: 09-001-00 REPORT DATE: 02/02/90

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 099

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:

50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:

NAME: Phil Lau HPES Coordinator TELEPHONE: (815) 458-2810

Ext. 2957

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:

REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

A DC ground investigation was in progress on 125V DC Bus 114 in
accordance with procedure. An Equipment Operator(EO) and a Shift Foreman
were systematically isolating and restoring loads to identify the ground.

Circuit number 19 was identified as the feed to the Generator Relay Normal Power. The procedure specified transferring to reserve power using a dead bus transfer procedure. At 1324 the EO opened circuit number 19 per procedure. When the circuit was opened an auxiliary relay was deenergized which provided input to Electro-Hydraulic Control System (DEHC). When the relay deenergized the DEHC system sensed that the Main Generator was disconnected from the transmission system with turbine load above 30%. This initiated a Load Drop Anticipation (LDA) sequence causing the Turbine Governor Valves to close. This caused steam pressure to increase and steam flow to decrease resulting in a Low Low Steam Generator Water Level Reactor Trip from the shrink effects on level indication. The cause of the event was a procedural deficiency. The procedure did not caution that an LDA would occur if turbine power was above 30%. The DC ground disappeared shortly after the Reactor Trip and did not return when the unit returned to power. The procedure has been temporarily revised. An evaluation of the methodology and content of the procedure will be conducted. No previous occurrences.

occurrences.

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END OF ABSTRACT

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A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 1; Event Date: January 12, 1990;

Event Time: 1324;

Mode: 1 - Power Operation; Rx Power: 99%;

RCS AB! Temperature/Pressure: NOT/NOP

B. DESCRIPTION OF EVENT:

There were no systems or components inoperable at the beginning of the event which contributed to the severity of the event.

A DCEJ! ground investigation was in progress in an attempt to identify and isolate a ground on the division 12 125V DC distribution system in accordance with Braidwood Operating

Procedure, BwOP DC-15, DC Ground Isolation. An Equipment Operator(EO)(non-licensed operator) and a Shift Foreman(SF)(Licensed Senior Reactor Operator) were systematically isolating loads, verifying ground status, and restoring loads on DC Busses 112 and 114 to identify the circuit which contained the ground.

Circuit number 19 on compartment ERI of DC bus 114 was identified as the electrical feed to 1PA23J, Generator Relay Normal Power and Transformer Relay reserve power. Table BwOP DC-15T4 specified transferring Generator Relay to reserve power in accordance with BwOP DC-6, 125VDC Control Power Transfer, a "dead bus" transfer.

At 1324 the EO opened circuit number 19 on compartment ER1 of DC bus 114 in accordance with BwOP DC-6. When the circuit was opened auxiliary relay MT1X was deenergized. This relay provided input to

the Digital Electro-Hydraulic Control System(DEHC)JJ!. When the relay deenergized the DEHC system sensed that the Main GeneratorEL! was disconnected from the 345KV Transmission SystemEA!.

Disconnection from the Transmission System with turbine load above 30% power initiates the Load Drop Anticipation Sequence(LDA). This caused the Main TurbineTG! Governor Valves and the Reheat Intercept valves to close.

The closure of the Governor and Intercept valves caused steam pressure to rapidly increase and steam flow to rapidly decrease which resulted in a "shrink" effect on Steam Generator(SG) Water Level InstrumentationJB!. Indicated SG level decreased rapidly with the 1D SG level indication reaching the Low Low SG Water Level Reactor Trip Setpoint of 40.8%. This caused a Reactor Trip, Feedwater(FW)SB! Isolation, Turbine Trip and Auxiliary FeedwaterBA! Initiation to occur. Initially the Feedwater Isolation Valve for 1C SG, 1FW009C, showed dual indication. A Nuclear Station Operator (Licensed Reactor Operator) took the Control Switch to the closed position and the valve indicated closed. All other automatic systems and components functioned as designed. Stable plant conditions were immediately established.

The appropriate NRC notification via the ENS phone system was made at 1458 pursuant to 10CFR50.72(b)(2)(ii).

This event is being reported pursuant to 10CFR50.73(a)(2)(iv) - any

event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature, including the Reactor Protection System.

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C. CAUSE OF EVENT:

The root cause of this event was a procedural deficiency. Procedure BwOP DC-15 specified performance of isolation steps for components listed on the applicable associated tables to the procedure. Table BwOP DC-15T4, 125V DC Bus 114, specified transferring Generator Relay power to Reserve Feed using procedure BwOP DC-6, a "dead bus" transfer. Table BwOP DC-15T4 did not contain a caution indicating that LDA would initiate a closure of the Turbine Governor and Intercept valves if Turbine power was above 30%. Performing the actions specified in BwOP DC-15T4 caused the event.

D. SAFETY ANALYSIS:

This event had no effect on the safety of the plant or the public. The perturbations in the secondary plant were sensed by Reactor Protection JG! instrumentation and a Reactor Trip was initiated. Both Trains of Reactor Protection and ESF were operable and available. Had the Unit been at 100% power a Reactor Trip, Turbine Trip, Feedwater Isolation, and Auxiliary Feedwater Initiation would have occurred as was the case in this event.

E. CORRECTIVE ACTIONS:

Automatic actions were verified, the 1FW009C control switch was taken to the closed position and the valve immediately indicated closed.

The DC ground on Division 12 disappeared shortly after the Reactor Trip. It is suspected that the ground was associated with secondary plant components that repositioned during the Turbine Trip or Feedwater isolation. No Division 12 125VDC Primary Plant components repositioned during the event. During the return to Power Operation of the Unit the 125VDC system was monitored. Based on initial indications the ground appears to have corrected itself. All 125VDC ground events are tracked and evaluated as part of the Braidwood Station Trend Report. This event has been added to the trend.

1FW009C was cycled several times with personnel observing the valve locally. The valve operated correctly each time with remote indication agreeing with local position in all cases.

BwOP DC-15T4 and its Unit 2 counterpart BwOP DC-15T9, have been temporarily revised to caution that an Overspeed Protection LDA may trip the unit.

An evaluation of the methodology and content of Procedure BwOP DC-15 and its associated tables will be conducted. This action will be tracked to completion by action item 456-200-90-00301.

F. PREVIOUS OCCURRENCES:

There have been no previous similar occurrences.

G. COMPONENT FAILURE DATA:

This event was not the result of component failure, nor did any components fail as a result of this event.

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Commonwealth Edison

Braidwood Nuclear Power Station

Route #1, Box 84

Braceville, Illinois 60407

Telephone 815/458-2801

February 6, 1990

BW/90-0155

U. S. Nuclear Regulatory Commission

Document Control Desk

Washington, D.C. 20555

Dear Sir:

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(iv) which requires a 30-day written report.

This report is number 90-001-00; Docket No. 50-456.

Very truly yours,

R. E. Querio

Station Manager

Braidwood Nuclear Station

REQ/JDW/jfe

(7126z)

Enclosure: Licensee Event Report No. 90-001-00

cc: NRC Region III Administrator

NRC Resident Inspector

INPO Record Center

CECo Distribution List

*** END OF DOCUMENT ***
